



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/817,516

04/01/2004

Heung-Yeung Shum

MS1-1884US

3162

22801 7590 06/27/2008  
LEE & HAYES PLLC  
421 W RIVERSIDE AVENUE SUITE 500  
SPOKANE, WA 99201

EXAMINER

JANKUS, ALMIS R

ART UNIT

PAPER NUMBER

2628

MAIL DATE

DELIVERY MODE

06/27/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/817,516	<b>Applicant(s)</b> SHUM ET AL.	
	<b>Examiner</b> ALMIS JANKUS	<b>Art Unit</b> 2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 March 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9, 30-47 and 55-59 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9, 30-47, 55-59 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                      |                                                                   |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____                                                          | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

1. Claims 1-9, 30-47, and 55-57 are presented for examination.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-9, 30-47 and 55-57 stand rejected under 35 U.S.C. 102(b) as being anticipated by Williams.

With respect to claim 1, Williams teaches the claimed method comprising: splitting a scene into one or more coherent layers, at figure 1; propagating boundaries of the coherent layers across a plurality of frames corresponding to the scene, at figure 1; and refining the splitting to present a virtual view of the scene, at the third paragraph of the abstract.

Claim 2 further requires the method as recited in claim 1, wherein the virtual view of the scene is substantially free from aliasing. Williams teaches this at the third paragraph of the abstract.

Claim 3 further requires the method as recited in claim 1, wherein each of the coherent layers has a corresponding background layer. Williams teaches this at figure 1 where the background layer is the averaged down layer from its larger predecessor.

Claim 4 further requires the method as recited in claim 1, wherein the plurality of frames correspond to different images of the scene. Williams teaches this at figure 1 where the different images correspond to diminished versions of predecessors.

Claim 5 further requires the method as recited in claim 1, wherein the refining is initiated by a user. Williams teaches this at section 7 which lists users involved in implementing this refining technique.

Claim 6 further requires the method as recited in claim 1, wherein each layer of the scene has a corresponding plane equation to represent a local geometry of that layer. Williams teaches this at section 2 with the parameter D which moves up and down the hierarchy of corresponding 2D (planar) functions.

Claim 7 further requires the method as recited in claim 1, further comprising

Art Unit: 2628

rendering the coherent layers with a corresponding background layer to present the virtual view of the scene. Williams teaches this at section 2 and figure 1 with intra and inter level interpolation, the background layer being the averaged down version of its corresponding larger predecessor.

Claim 8 further requires the method as recited in claim 1, further comprising rendering the coherent layers with a corresponding background layer to present the virtual view of the scene, wherein the background layer is provided by combining a plurality of under-segmented regions. Williams teaches this at figure 1.

Claim 9 requires computer readable media storing instructions to perform the method of claim 1. The abstract of Williams teaches computer-generated imagery.

Claims 30, 35, 44 and 55 are similar to claim 1 and are rejected under similar rationale.

Claim 31 further requires the user interface as recited in claim 30, wherein a plurality of polygons represent boundaries of the coherent layers. Williams teaches this at figure 1.

Claim 34 further requires the user interface as recited in claim 30, further comprising a background construction module to provide a background layer

Art Unit: 2628

corresponding to the coherent layers, wherein the background layer is provided by removing the coherent layers from a key frame corresponding to the scene.

Williams teaches this at section 3 and at figure 1. The key frame is the largest, or original image. The background layer is constructed by averaging down (removing layers) from the original frame.

Claim 42 further requires the system as recited in claim 35, further comprising a memory module to store instructions. Williams teaches this at figure 1 with the memory organization.

Claim 43 further requires the system as recited in claim 35, further comprising one or more processing units to execute a plurality of stored instructions on one or more memory modules coupled to the processors. Williams teaches this at the abstract as computer-generated imagery.

Claims 32, 36 and 45 are similar to claim 2; claim 33 is similar to claim 3; claim 37 is similar to claim 4; claim 38 is similar to claim 5; claim 39 is similar to claim 6; claims 40, 46 and 56 are similar to claim 7; and claims 41, 47 and 57 are similar to claim 8, and the respective similar claims are rejected under respective similar rationale.

Claims 58 and 59 require the scene to represent a set of images. MIP images are a set of images.

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 9 and 44-47 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 9 and 44-47 are directed to computer-readable media storing computer executable instructions. Paragraphs 133-135 of the instant specification includes signals as computer-readable media. Signals fail to fit any of the four statutory classes of inventions.

6. Applicant's arguments filed 03/28/08 have been fully considered but they are not persuasive. A scene may be split in a number of different ways. With respect to Williams, the scene is split in the sense of higher and lower resolutions. Each split portion is coherent because each resolution is obtained from one image. The plane equation is inherent because the different levels of MIP are used as a function of distance from the viewer, i.e., the virtual planes representing each level of detail are further or closer in  $z$  to the viewer,  $z$  being a plane equation variable. Propagating boundaries across a plurality of frames is part of the interpolating function. If a distance requires resolution that's in-between stored MIP values, then the boundaries of the MIP

images must coincide with each other to determine an interpolated image, i.e., an image that is propagated between two stored MIP images.

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Almis R. Jankus whose telephone number is 571-272-7643. The examiner can normally be reached on M-F, 6:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Razavi can be reached on 571-272-7664. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Art Unit: 2628

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AJ  
/Almis Jankus/

Primary Examiner, Art Unit 2628